Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 15 of the Commission's Rules	)	ET Docket No. 14-165
for Unlicensed Operations in the Television Bands	)	
Repurposed 600 MHz Band, 600 MHz Guard	)	RM-11840
Bands and Duplex Gap, and Channel 37.	)	
	)	

REPLY COMMENTS OF LECTROSONICS, INC.

Lectrosonics, Inc. respectfully submits these Reply Comments in response to Microsoft's Petition for Rulemaking[1] and the various Comments filed in the above captioned proceeding. We support the goal of improving access to broadband data services in rural areas. However, while Microsoft presents the rule changes in its petition as intended to advance the goal of eliminating the digital divide in rural America, only one of the proposed rule changes is expressly limited to "less congested areas" as defined by the Commission. Certain others fail to properly protect incumbent wireless microphone ("WM") users from interference from white space devices ("WSD"), as we argue below. In these matters we find ourselves agreeing with many of the concerns raised in the Comments of Sennheiser and Shure Inc. in this proceeding. We believe the Commission must not adopt Microsoft's proposed rules without revisions to properly protect WM operations.

I. INTRODUCTION

Lectrosonics, Inc. is a manufacturer of professional wireless microphone and IFB (interruptible foldback) cueing and control systems used in TV production, film making, theater, sporting events, houses of worship and musical performances. For over 30 years

1 *In the Matter of Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Guard Bands and Duplex Gap, and Channel 37*, Petition for Rulemaking of Microsoft Corporation ("Microsoft Petition").

Lectrosonics has produced equipment operating under Part 74 and Part 15 rules for both licensed and unlicensed uses.

II. THE PROPOSAL FOR FIXED WSD OPERATIONS ON MOVABLE PLATFORMS WITHIN GEOFENCED AREAS MUST BE GEOGRAPHICALLY LIMITED TO "LESS CONGESTED AREAS" TO PROTECT WM OPERATIONS. OTHERWISE, EXPANSION OF PART 74 LICENSING ELIGIBILITY IS NECESSARY TO PROTECT INCUMBENT WM OPERATIONS.

Microsoft's proposed rule changes define a class of fixed WSD operating from "movable platforms within geofenced areas".[2] These changes require modification to prevent disruption of incumbent WM operations. The proposed mode of operation greatly expands the number of WM installations which may be disrupted if a passing high power WSD is transmitting on frequencies occupied by WM. Although Microsoft describes rural use cases, the proposed rule does not restrict such operations to less congested areas. It is highly likely that deployment in urban areas will prove even more useful than in rural areas, due to applications in manufacturing and transportation, to name just a few possibilities. Microsoft states that the geofenced WSD would check the white spaces database every 60 seconds during operation to ensure that it does not transmit on channels that conflict with registered WM operations. In congested urban areas such roving transmitters will likely pass near many buildings with WM systems, so only a perfect execution of white spaces database coordination can prevent conflicts with registered licensed operations. Even if this is accomplished, it does not prevent interference to unlicensed WM devices on a geographical scope not anticipated when the existing rules were established. Given that the proposed changes are ostensibly aimed at improving broadband access in rural areas, Lectrosonics submits that such operations be explicitly limited to "less congested areas" where they will achieve the desired result without increasing spectrum congestion and conflicting with WM in urban areas. Otherwise, if this is not done, we submit that protection for WM operations must be enhanced by expanding Part 74 licensing eligibility, currently limited to professional sound companies or large venue operators using 50 or more WM channels.[3] Professional WM operators using fewer than 50 WM channels will need the ability to register with the

2 Microsoft Petition, at 22.

3 *See*, 47 C.F.R. § 74.832(a)(8).

white spaces databases to gain protection from the roving high power WSD Microsoft is proposing, which presents an interference potential not envisioned when the Part 74 licensing eligibility rule was set.

III. THE PROPOSED "NARROWBAND" WSD SHOULD CONFORM TO THE SAME EMISSION MASK AS INCUMBENT WM DEVICES, AND BE GEOGRAPHICALLY LIMITED TO "LESS CONGESTED AREAS".

Microsoft's proposed rule changes define a new "narrowband" WSD type intended for "internet of things" ("IoT") applications.[4] Without modification, these changes will likely increase spectrum congestion and the risk of interference to incumbent WM operations. Although Microsoft describes farming, mining and forestry use cases, the proposed rule does not restrict narrowband WSD to less congested areas. However, it is probable that deployment of such devices in urban areas will be just as useful as in rural areas, or more so. IoT devices in congested urban areas will inevitably come into proximity with WM operations and increase the potential for interference. This is true even though the proposed rule change limits the duty cycle of narrowband WSD devices is limited to 10 seconds per hour; WM operations in live sound, TV production and film making operations can be disrupted by even brief interruptions of service. Given that the proposed changes are ostensibly aimed at improving broadband access in rural areas, Lectrosonics proposes that IoT operations be explicitly limited to "less congested areas" where they will achieve the desired result without increasing spectrum congestion and conflicting with WM in urban areas.

Also problematic is the proposed adjacent channel emission limit for IoT devices, which is couched in terms of 6 MHz television channels rather than the proposed 100 kHz channel. The proposed rule states that the –42.8 dBm out of channel limit "shall not apply between the edge of the narrowband channel and the edge of the 6 MHz channel that contains it." However, this is inadequate if the 6 MHz channel is shared with WM devices, even in less congested areas. Lectrosonics submits that narrowband WSD

4 Microsoft Petition, at 15.

should conform with the ETSI emission mask that is imposed on WM devices.[5] This promotes the goal of efficient spectrum usage by ensuring that all narrowband devices in the same 6 MHz channel operate within the same adjacent channel spurious emission limits.

IV. CONCLUSION

Lectrosonics respectfully submits that Microsoft's proposed rule changes not be adopted without incorporating additional protection for WM operations:

a. Fixed WSD operations on movable platforms within geofenced areas should be geographically limited to "less congested areas" to protect WM operations. Otherwise, Part 74 licensing eligibility must be expanded to afford professional WM operators using fewer than 50 channels interference protection from this new class of roving high power WSD.

b. The proposed "narrowband" WSD should conform to the same emission mask as incumbent WM devices, and be geographically limited to "less congested areas".

Respectfully submitted,

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5 See, 47 C.F.R. § 74.861(e)(7).